

# OUTPUT FACT SHEET

## Pilot actions (including investment, if applicable)

Version 2

Project index number and acronym	CE177 - GeoPlasma-CE
Lead partner	GBA (AT)
Output number and title	T3.1 Data assessment relevant for the planning of shallow geothermal utilization including field measurements
Investment number and title (if applicable)	n.a.
Responsible partner (PP name and number)	PP05 Czech Geological Survey
Project website	<a href="https://www.interreg-central.eu/Content.Node/GeoPLASMA-CE.html">https://www.interreg-central.eu/Content.Node/GeoPLASMA-CE.html</a>
Delivery date	01.2019

Summary description of the pilot action (including investment, if applicable) explaining its experimental nature and demonstration character

The assessment of existing and additional data in the GeoPLASMA-CE pilot areas cover thematic aspects relevant for mapping and evaluation of resources and conflicts related to the use of shallow geothermal energy. The data covered subsurface and surface parameters, which were summarized in joint parameters lists (deliverable D.T2.3.1).

The data assessed cover existing literature and archive data accessible for the project partners. In that context, it has to be pointed out that the Geological Survey Organization involved in GeoPLASMA-CE are of great importance to access geoscientific archive data.

In a first step, existing data were gathered and, if necessary, processed (e.g. digitized) as well as harmonized (regarding physical units and geological classification). Afterwards, deficiency analyses have been performed to identify data gaps and plan the field measurements in the pilot areas.

The additional field measurements have been performed in 2017 and 2018 to achieve an observation period of at least one year. In order to make measurements of the same parameter in different pilot areas comparable to each other, comparative- and calibration measurements have been performed in most pilot areas.

Finally, datasets from additional field measurements were collected in databases, which will be published at the GeoPLASMA-CE web portal.

The assessed datasets (existing and additionally measured) fed into the thematic map series describing resources and conflicts of use. The selection of parameters has been done in a harmonized way based on joint workflows, which were produced in WPT2. By doing so, the project team tested and demonstrated the harmonized workflows and investigated their comparability. The activity reports summarize the strategies, chosen approaches and lessons learned from the data assessment. As these reports have been prepared in English language, they support the transfer of experiences gained in GeoPLASMA-CE to other regions in Europe.

#### NUTS region(s) concerned by the pilot action (relevant NUTS level)

AT13 Wien, DED4 Chemnitz, DED2 Dresden, CZ041 Karlovarský kraj, CZ052 Královéhradecký kraj, SK010, Bratislavský kraj, SI021, Osrednjeslovenska, PL12, Mazowieckie, PL213, Miasto Kraków, SI021, Osrednjeslovenska, Kittsee AT112, Hainburg AT122.

#### Investment costs (EUR), if applicable

n.a.

### Expected impact and benefits of the pilot action for the concerned territory and target groups and leverage of additional funds (if applicable)

The data assessed are crucial for creating and evaluating the thematic web maps on resources and conflicts of use in the pilot areas. These maps, published in the GeoPLASMA-CE web based decision support and information tools (O.T1.1) constitute a major thematic output for the addressed pilot areas. The data assessed therefore support future planning of shallow geothermal installations and related licensing procedures in the 6 pilot areas. The workflows tested in GeoPLASMA-CE for data assessment will be transferred to follow up projects like MUSE. The activity reports in turn will be published in English language and may be adapted in other regions as well. The experiences gained in GeoPLASMA-CE showed that specific geoscientific datasets related to shallow geothermal use were not available in the needed extend at the beginning of the project. We think this applies for many other regions in Europe.

### Sustainability of the pilot action results and transferability to other territories and stakeholders.

The datasets collected in the pilot areas focus on the use of shallow geothermal energy but can be used for other purposes like (1) groundwater management, (2) geological exploration for various purposes, (3) climate impact studies (evaluation of the measured subsurface temperature profiles regarding long term changes of the surface temperature).

The workflows developed and applied for assessing relevant input data linked to shallow geothermal energy use can be adapted in other regions as well. For this purpose, the approaches used and lessons learned are described in English language Activity reports. All data achieved during field measurements have been made public accessible without any limitations. The documentation provided at the GeoPLASMA-CE web portal supports the adaption of the produced data. Due to partial restrictions to existing data, especially raw data maintained but not owned by the involved Geological Survey Organizations, the project team decided to not publish them. However, all partners prepared metadata tables describing the accessible existing input datasets. These tables will be kept on record to allow a full documentation of the outputs produced. Contact details of the responsible project partners are published at all thematic web maps, which allows external stakeholders to contact the project team and ask for further details on not unpublished existing datasets.

The main regional stakeholders for the use of data assessed are planners and installers of shallow geothermal systems, authorities as well as research teams. The main stakeholders of the tested approaches are represented by other international research groups as well as authorities and planners from other regions linked to the GeoPLASMA-CE project team.

## Lessons learned and added value of transnational cooperation of the pilot action implementation (including investment, if applicable)

During the data assessment phase in GeoPLASMA-CE we can conclude the following issues regarding lessons learned and added value through cooperation:

- 1) The heterogeneous framework in the participating countries concerning publicity rules and ownership protection for geoscientific data did not allow to publish all existing data at the GeoPLASMA-CE web portal. In that context Geological Survey Organizations (GSO) play an important role as they have access to most subsurface data for internal purposes. We therefore decided to nominate the GSOs as main contacts towards external users of the web portal for providing information on unpublished background data.
- 2) The translational cooperation was very valuable for transferring and exchanging knowledge concerning the field measurements and data management. The benchmark measurements regarding thermal response tests offer a vital opportunity to install a future trans-national network for making results better comparable.

### Contribution to/ compliance with:

- relevant regulatory requirements
- sustainable development - environmental effects. In case of risk of negative effects, mitigation measures introduced
- horizontal principles such as equal opportunities and non-discrimination

The only relevant regulatory requirements obligatory for this output is related to the GDPR rules to some extent. All person related information, which might arise from our field measurements (e.g. the name of owners of investigated borehole heat exchangers) were not published.

Furthermore, GeoPLASMA-CE supports the FAIR data policy (Findable, Accessible, Interoperable and Reuseable) regarding all data, which were produced within the project. These datasets are published at the GeoPLASMA-CE web portal and will be complemented by related raw-data and a documentation of the assessment process. All background information can be downloaded and directly used in digital format.

In general, the assessed and produced data supported the generation of thematic maps, which will be used for a sustainable and efficient use of shallow geothermal energy in the six GeoPLASMA-CE pilot areas. These data therefore support the use of a renewable and environmentally friendly heating- and cooling source and help to avoid technical risks due to complex geological conditions as well as an overexploitation of the heat available in the subsurface.

All data produced will be equally accessible at the GeoPLASMA-CE web portal.

References to relevant deliverables (e.g. pilot action report, studies), investment factsheet and web-links

If applicable, additional documentation, pictures or images to be provided as annex

The project output refers to the following deliverables:

- D.T3.1.1 Quantitative reports on the data inventory and concepts of field measurements;
- D.T3.1.2 Databases of already existing field data;
- D.T3.2.1 Updated databases of existing and additionally measured field data;
- D.T3.2.2 Activity report on the field measurements.

All mentioned deliverables have been uploaded to the eMS and can be requested at: [office@geoplasma-ce.eu](mailto:office@geoplasma-ce.eu).